

SATELLITE TV
ANTENNA/RECEIVER

153

STANDARD TELEVISION SIGNAL

PC VBI DECODER
DECODER EXTRACTS VBI DATA
FROM TELEVISION VIDEO SIGNAL

AIRMEDIA LIVE
COMMUNICATIONS
SERVER

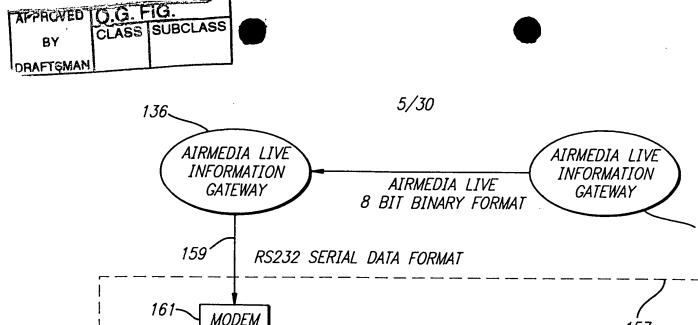
AIRMEDIA LIVE

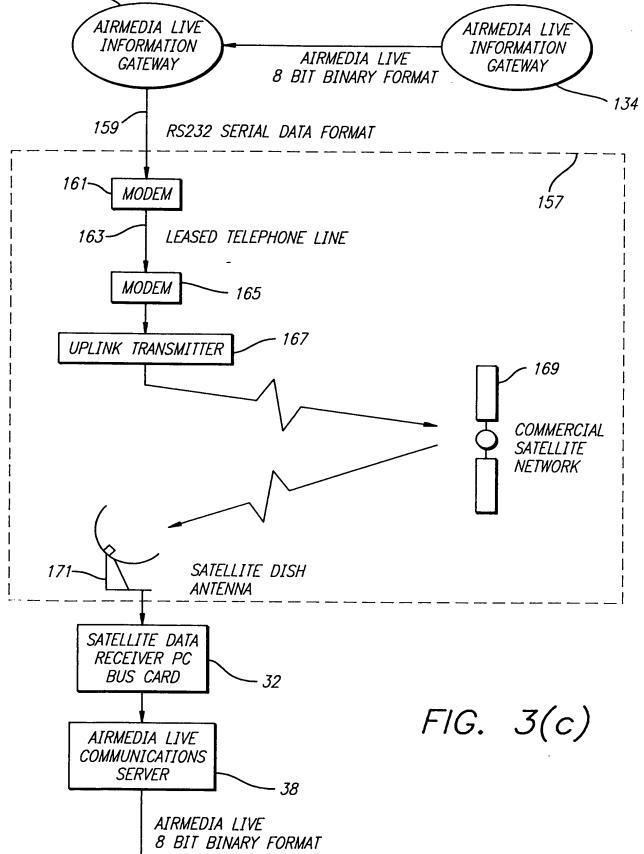
38

8 BIT BINARY FORMAT

FIG. 3(b)

149





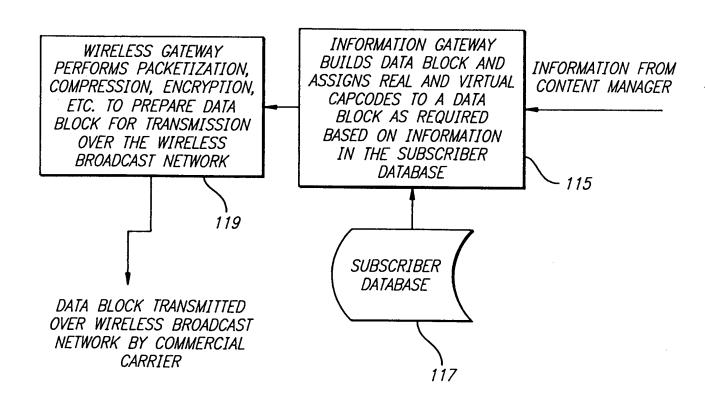


FIG. 4

AFPROVED O.G. FIG.

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FIG. 5-1		
Item	Size	Description
Header:		
CRC	2 bytes	Standard Cyclical Redundancy Code to verify data block integrity.
Header Type	1 bit	If bit clear, then this is a message header. If bit set, then this is the data
	;	block header.
Custom Header Flag	1 bit	If bit clear, no custom header. If bit set, then a custom header is included in
		the data block.
Version Number	4 bits	Protocol version used.
Private Data Block Flag	1 bit	If bit clear, then this data block will be passed on to the Alert Panel for
		processing and display. If bit set, then this is a private data block to be
		processed internally by the Communications Server.
Virtual Capcode Flag	1 bit	If bit clear, then this data block is not targeted for a specific virtual
		capcode and no virtual capcode is included in the data block. If bit set, then
		this data block contains a virtual capcode.
Data Block Type	1 byte	The value of this byte specifies the type of data contained in the data block.
		If Private Data Block Flag is clear: 1 = plain text, 2 = AirMedia Live data feed
		format. If Private Data Block Flag is set: 1 = Capcode reprogramming message, 2
		= Binary file transfer.
Data Block Version	4 bits	The version number of this data block's format.

Use Compression Flag	1 bit	If bit clear, then this data block is not compressed. If bit set, then
		compression is used and the compression type is specified in the Compression ID
		item.
Use Encryption Flag	1 bit	If bit clear, then this data block is not encrypted. If bit set, then this data
		block is encrypted.
Spare	2 bits	Reserved for future use.
Compression ID	1 byte	Included only if Use Compression Flag is set. Indicates the type of compression
(optional)		nsed.
Virtual Capcode	1 byte	Included only if Virtual Capcode flag is set. Contains the virtual capcode to
(optional)		which this data block is targeted.
Size of Custom Header	1 byte	Included only if Custom Header Flag is set. Contains the size in bytes of the
(optional)		custom header.
Custom Header	variable	Reserved for future enhancements to data block protocol. Size determined from
(optional)		previous item.
Contents:		
Data Block Contents	variable	Information notification data from the information source to be processed by
		AirMedia Live software.

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Personal alert notification data. Size of data is determined by the Alert Length

item.

variable

Contents: Alert Data

The value of this item defines the alert type (e.g. new e-mail arrival alert).

Up to 256 predefined alert types are allowed.

The size of the alert data in bytes.

1 byte

Alert Length Alert Type

Header:

Description

Size

Item

F1G. 6

F1G. 9

Item	Size	Description
Header:		
Packet Type	4 bits	The value of this item indicates the packet type: 0 = Standard AirMedia Live
		Packet; 1 = Single Packet Data Block; if the left most bit (high bit) is set,
		then this is a Binary Alert Packet.
Data Block ID	12 bits	The ID of the data block contained in this packet.
Contents:		
Packet Contents	variable	variable The header and contents of the data block contained in this packet.

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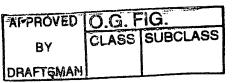
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Item	Size	Description
Header:		
CRC	2 bytes	Standard Cyclical Redundancy Code to verify message integrity.
Header Type	1 bit	If bit clear, then this is a message header. If bit set, then this is the data
		block header.
Custom Header Flag	1 bit	If bit clear, no custom header. If bit set, then a custom header is included in
		the message.
Data Block ID	14 bits	ID of the data block to which this message belongs.
Message Number	1 byte	The position of this message in the data block (i.e. message sequence number).
Total Messages	1 byte	Total number of messages in the data block.
Size of Custom Header	1 byte	Included only if Custom Header Flag is set. Contains the size in bytes of the
(optional)		custom header.
Custom Header	variable	Reserved for future enhancements to message protocol. Size determined from
(optional)		previous item.
Contents:		
Message Contents	variable	The data portion of the message.

F1G. 7

F/G. 8

Item	Size	Description	
Header:			
Packet Type	4 bits	The value of this item indicates the packet type: 0 = Standard AirMedia Live	
		Packet; 1 = Single Packet Data Block; if the left most bit (high bit) is set,	
		then this is a Binary Alert Packet.	
Total Packets Flag	1 bit	If bit is clear, then the Total Data Packets and Total Error Correction Packets	<u>ر</u>
		items are not present. If bit is set, then the Total Data Packets and Total	11,
		Error Correction Packets items are present.	/30
Message ID	11 bits	The number of the message to which this packet belongs.	
Packet Number	1 byte	The position of this packet in the message (packet sequence number).	
Total Data Packets	1 byte	Total number of data packets in the message (does not include error correction	_
		packets).	
Total Error Correction	1 byte	Total number of Reed-Solomon forward error correction packets in the message.	
Packets			
Contents:			
Packet Contents	variable	The data portion of the packet.	





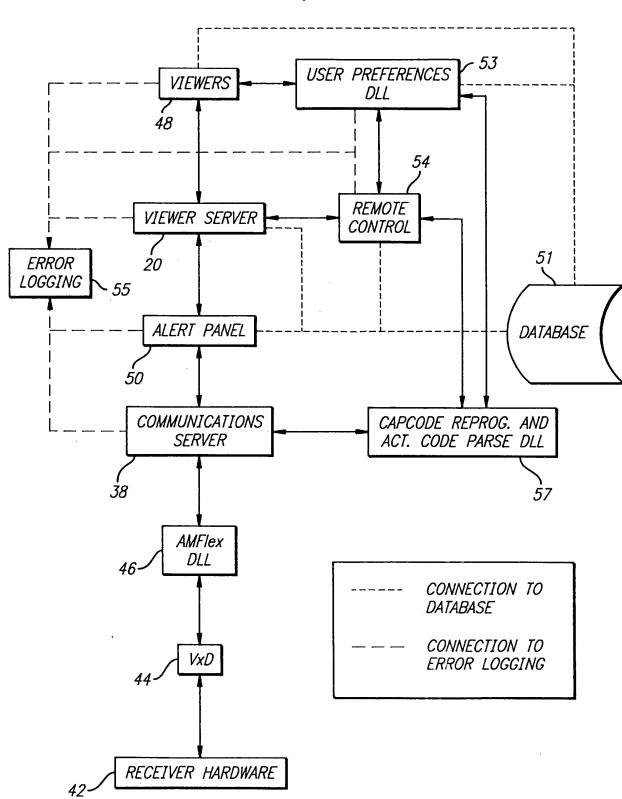
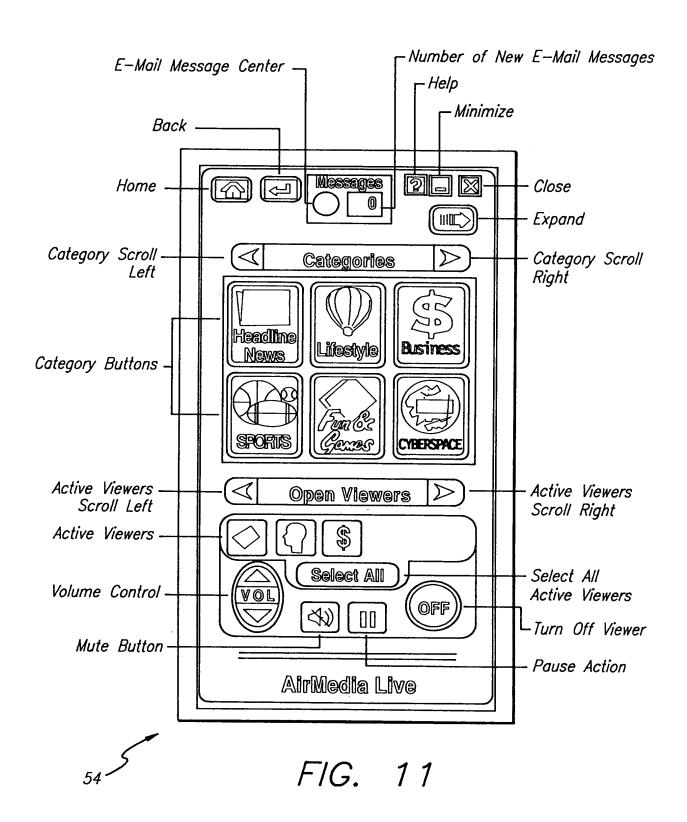


FIG. 10

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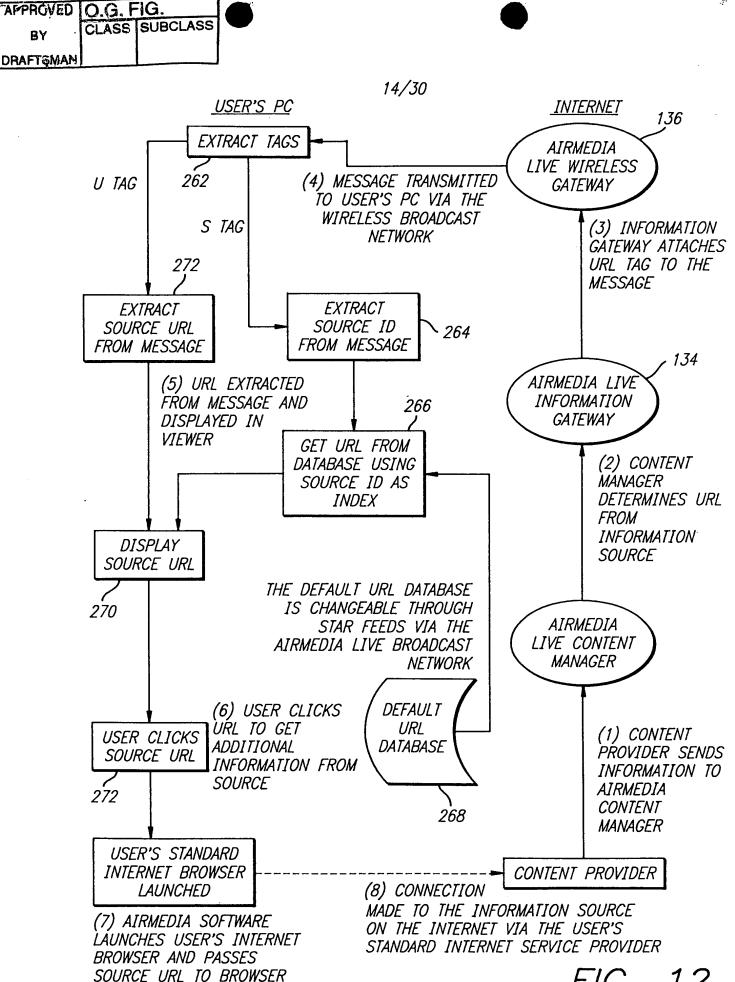
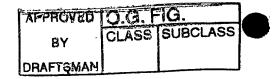


FIG.



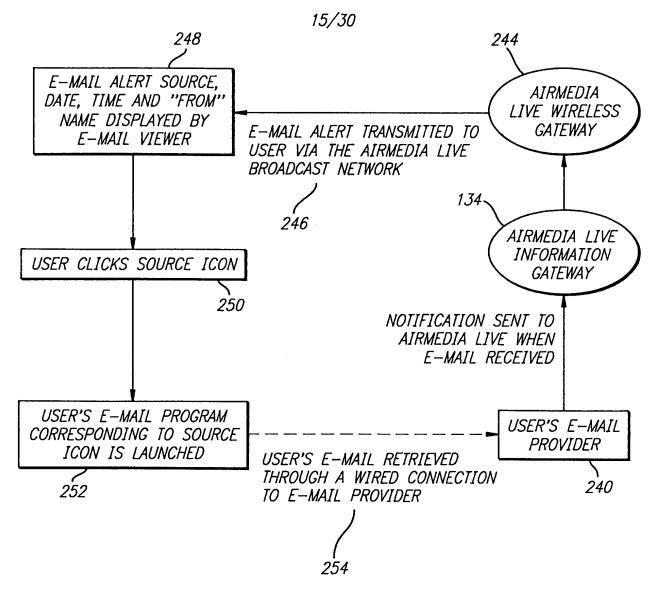
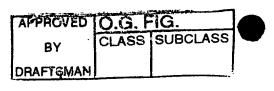
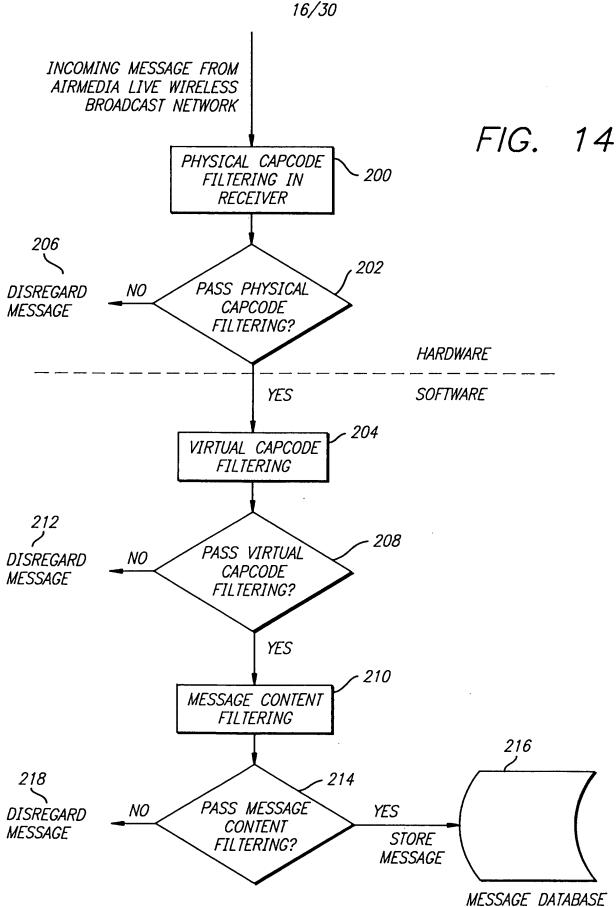
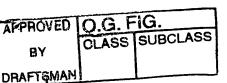


FIG. 13







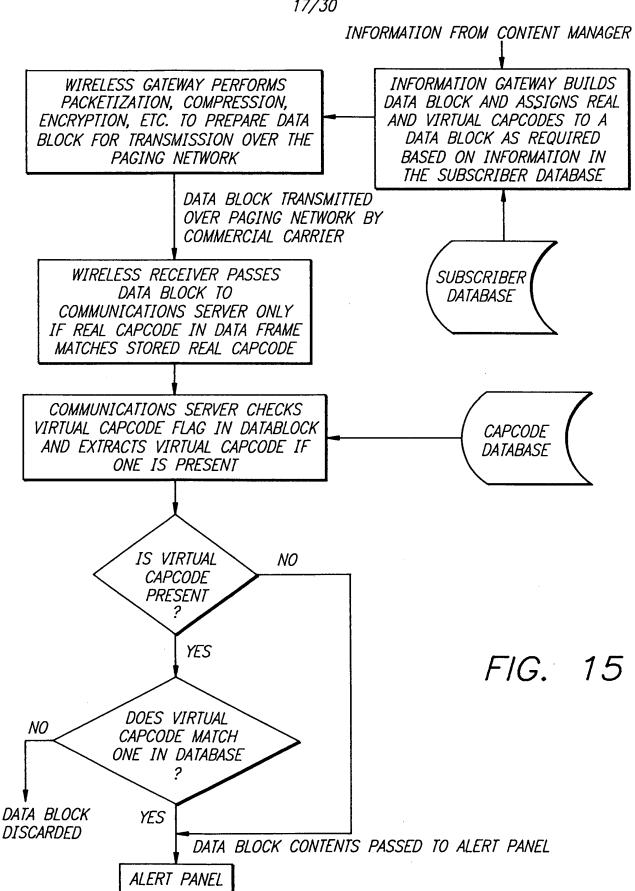
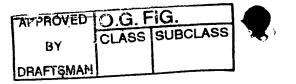


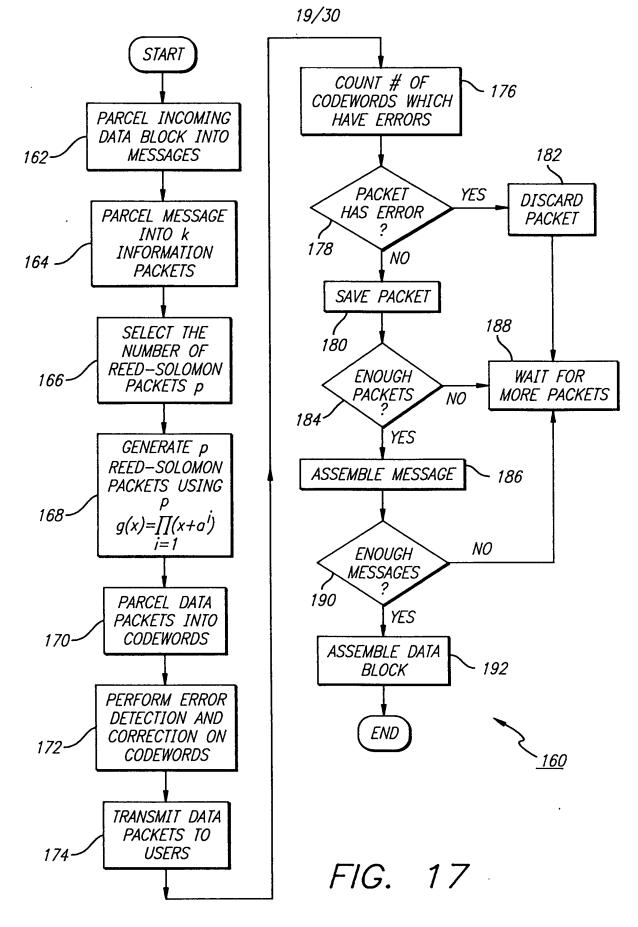
FIG. 16

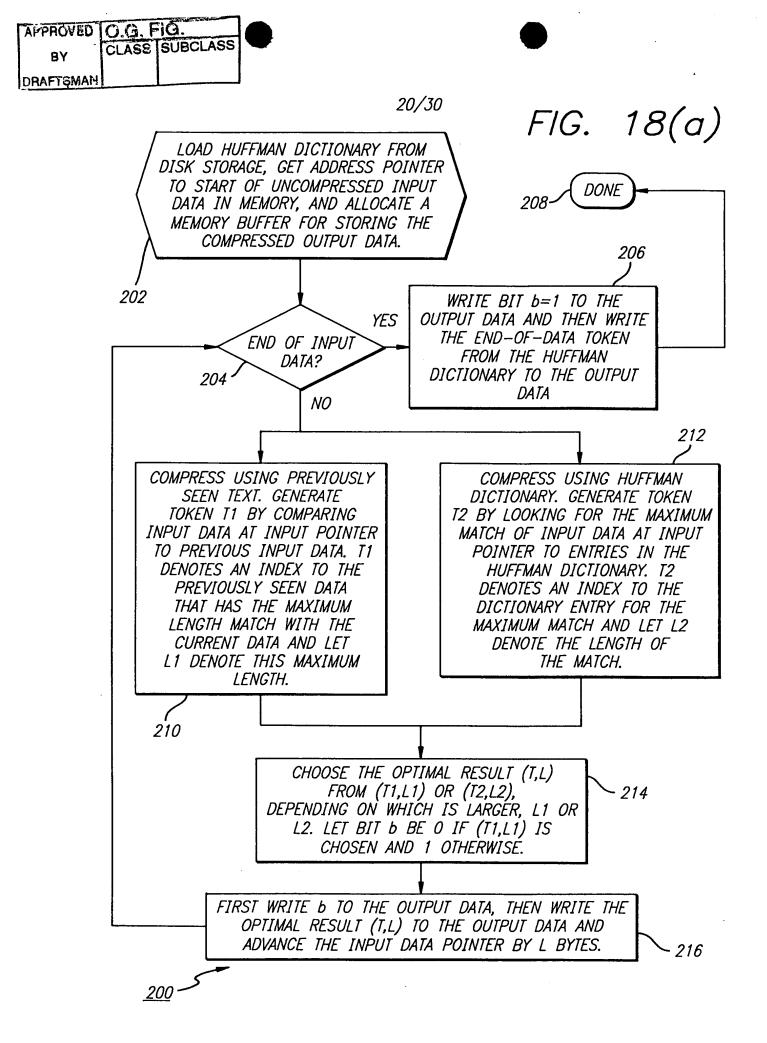
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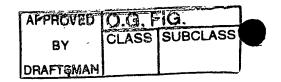
		column s	×	×	. Reed Solomon	. Parity- Check	Packets	×	×	×	x Information	. Packets		. 154	
			:	:	:	•	•	:		:	•	•	:	:	
		column 3	×	×	•	•	•	×	×	×	×	•	•	•	;
		column 2	×	×	•	•	•	×	×	×	×	•	٠	•	,
	Packet	column 1	×	×	•	•	•	×	×	×	×	•	•	•	,
	Packet Header		header 1	header 2	•	٠	•	header p	header p + 1	header p + 2	header p + 3	•	•	•	1
Whole Packets			packet 1:	packet 2:	•	•	•	packet p:	packet p + 1	packet p + 2	packet p + 3	•	٠	•	* +07000

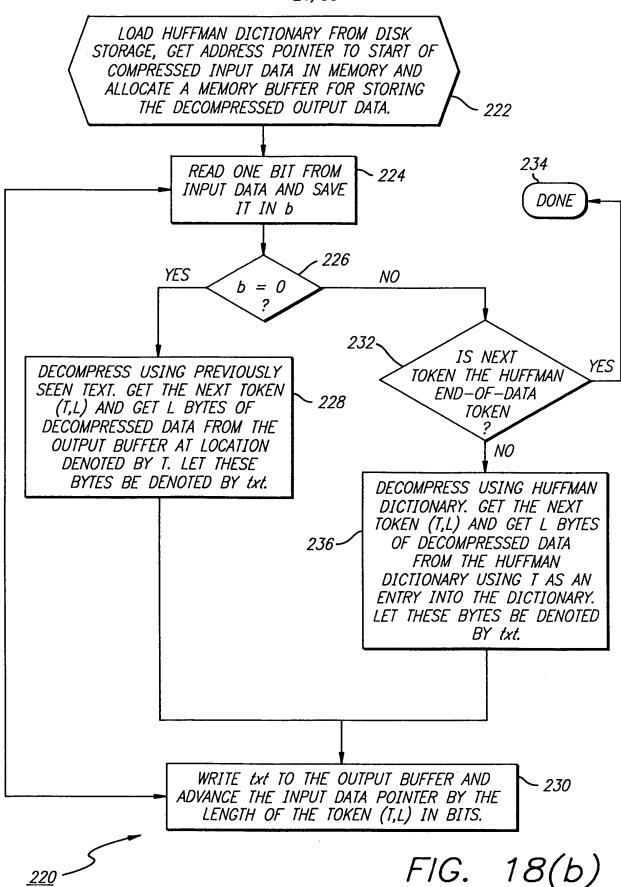
150 -









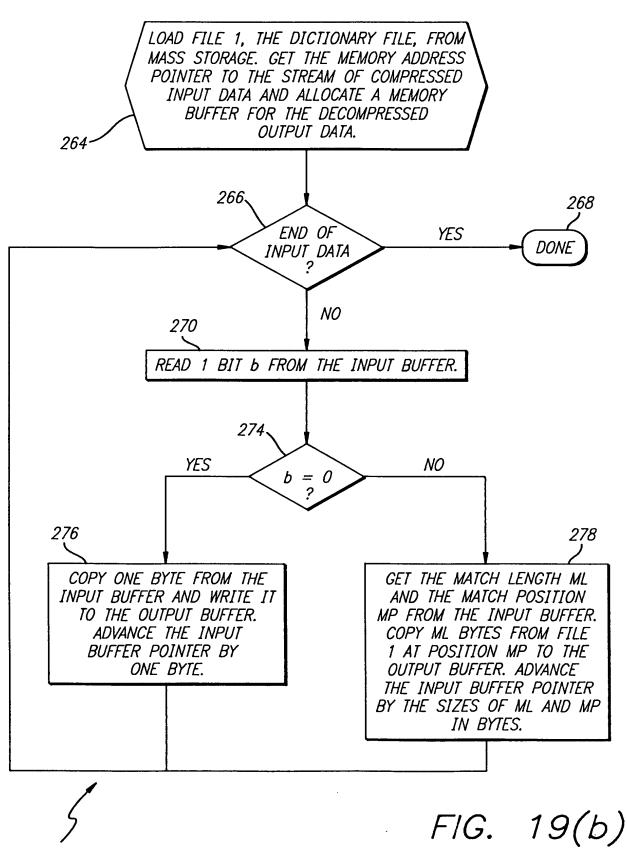


LOAD THE PRECOMPUTED STANDARD HASH TABLE HT FOR FILE 1. THE DICTIONARY FILE, FROM MASS STORAGE. SET THE MINIMUM MATCH LENGIH I FROM THE LENGIH USED IN CREATING HT. SET THE MAXIMUM MATCH LENGTH U FROM THE LIMITS ON CONTIGUOUS DATA BLOCK TRANSMISSION SIZE. GET THE MEMORY ADDRESS POINTER TO THE STREAM OF INPUT DATA (FILE 2) TO BE COMPRESSED BY DIFFERENCING WITH FILE 1. AND ALLOCATE A MEMORY BUFFER FOR THE COMPRESSED OUTPUT DATA. 242 246. YES END OF DONE INPUT DATA - 248 NO CALCULATE THE HASH VALUE H OF THE NEXT INPUT DATA SUBSTRING OF LENGTH L BYTES WITH THE SAME HASHING ALGORITHM USED TO COMPUTE HT. 250 SET THE OPTIMAL MATCH LENGTH ML TO O. - *252* SET THE OPTIMAL POSITION MP TO -1. 254 FOR EACH POSITION P IN HT CORRESPONDING TO H: FIND THE BEST MATCH LENGTH PML AT POSITION P IN FILE 1 SUCH THAT L <= PML <= U IF PML IS GREATER THAN ML, THEN SET ML = PML AND MP = P. REPEAT UNTIL ALL POSITIONS ARE CONSIDERED. 256 YES NO ML = 0260 WRITE BIT VALUE O TO THE WRITE BIT VALUE 1 TO THE OUTPUT BUFFER. WRITE THE OUTPUT BUFFER. WRITE THE BYTE AT THE CURRENT INPUT OPTIMAL MATCH LENGTH ML - 258 BUFFER POINTER TO THE AND THE OPTIMAL MATCH OUTPUT BUFFER. ADVANCE POSITION MP TO THE THE INPUT BUFFER POINTER OUTPUT BUFFER. BY ONE BYTE. ADVANCE THE INPUT BUFFER POINTER BY ML BYTES.

FIG. 19(a)

- <u>240</u>

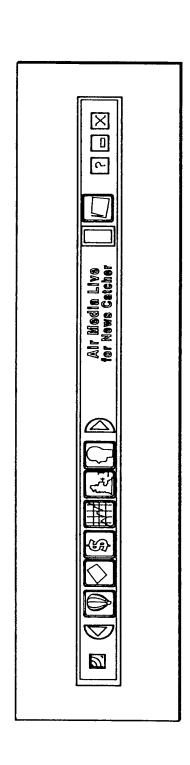
23/30



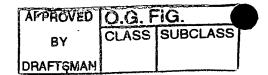
<u> 262</u>

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FIG. 20



50



<u>300</u>

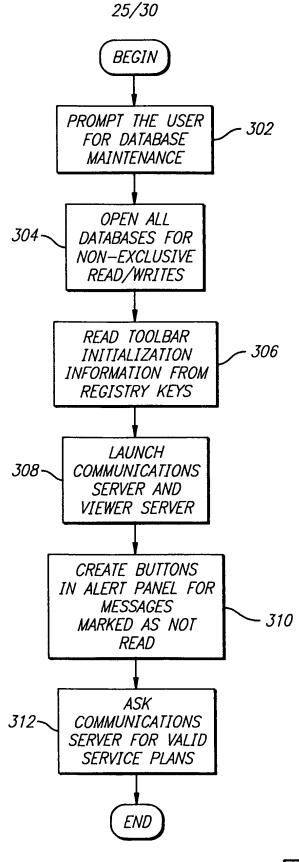


FIG. 21

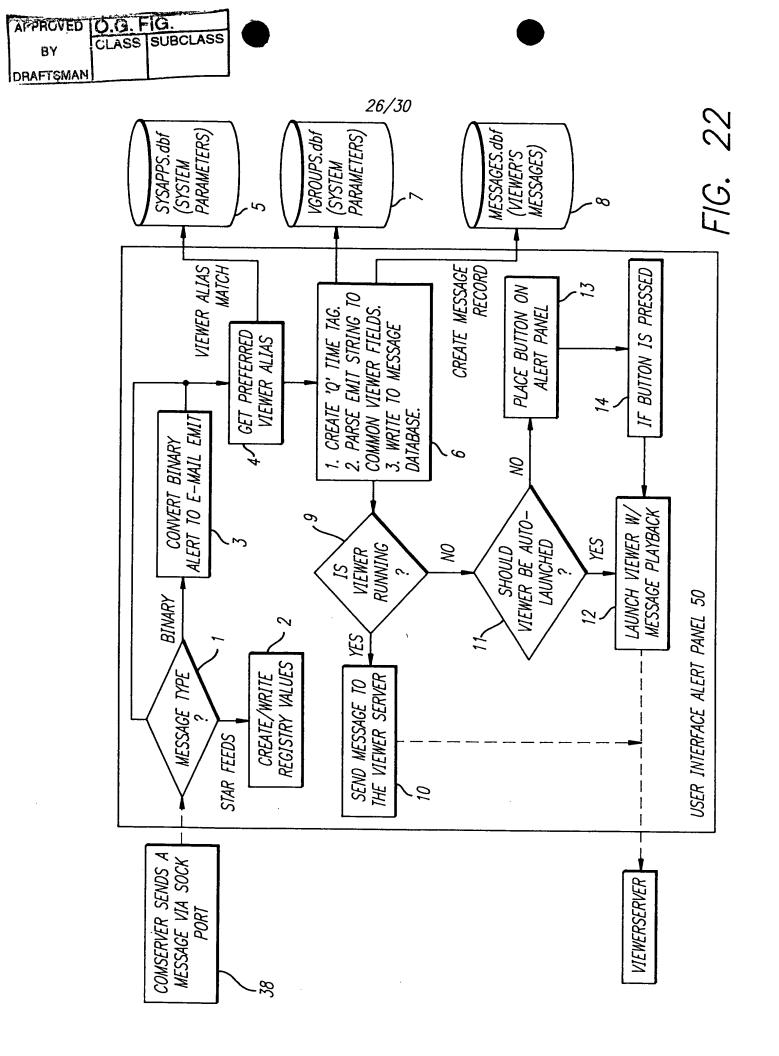


FIG. 23

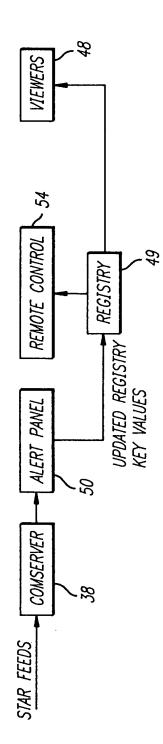


FIG. 24(a)

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INDEXES VOLUME CUR	CURRENCIES	FIFTEEN	FAVORITES
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S&P 500 .09 Germa Germa 729.65 🔆	Germany 1.5043	BEL	60′8 '4∜ 45¹8 58∜
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NEWS Dow Jones is down 30 points	n 30 points	•	

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FIG. 24(b)

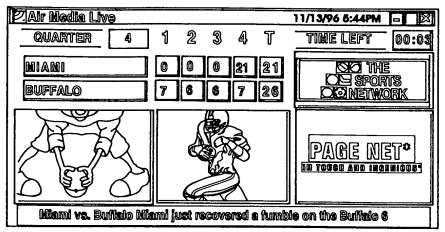


FIG. 24(c)

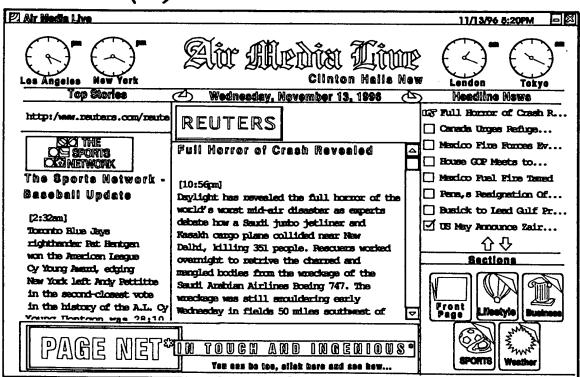


FIG. 24(d)

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